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ABSTRACT

This handbook contains a synopsis of the technical data on a variety of tests and inventories used in career assessment. The test abstracts provided include a description of the components of the tests, norms used, coefficients of reliability and validity, and the advantages of uses of the tests. The tests are grouped in three categories: (1) career/vocational education, (2) personality inventories, and (3) measurement inventories relevant to industrial settings. This publication also contains an index of the various publishing firms and addresses from which materials can be ordered. (For related documents see CE 019 677, CE 019 679 and CE 019 681.) (CSS)

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A USER'S GUIDE TO SELECTED PUBLISHED TESTS IN CAREER EDUCATION & CAREER GUIDANCE

Eleanor Wong

Barbara Smisko

A SYSTEMS APPROACH TO ASSESSMENT AND EVALUATION OF POST SECONDARY VOCATIONAL EDUCATION PROGRAMS

CE 019 680

The Wisconsin Vocational Studies Center

University of Wisconsin-Madison

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A SYSTEMS APPROACH TO ASSESSMENT AND EVALUATION OF POST-SECONDARY VOCATIONAL EDUCATION PROGRAMS

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A USER'S GUIDE TO SELECTED PUBLISHED TESTS IN CAREER EDUCATION AND CAREER GUIDANCE

This publication of test reviews is the product of a federally-funded eighteen month project, "A Systems Approach to Assessment and Evaluation of Post-Secondary Vocational Education Programs." The purpose of the project is to develop materials for local post-secondary educators planning and evaluating job training programs. Specifically, the project focuses on the non-job skills and traits which help individuals get, keep, and advance on jobs. These are personal, interpersonal, and social skills which may make the difference between job success and job failure.

The review of current tests available was carried out to examine existing instruments which measure personal, interpersonal, and social skills related to job seeking and job keeping. While no instruments were identified which dealt with the specific intent of this project, a number of related test and inventories were examined and reviewed.

The tests were selected for review after reference to Buros, O. K., 7th Mental Measurement Yearbook, and the 1977-78 catalogues of current and experimental tests available. Copies of selected tests and accompanying technical manuals were solicited from publishers. Once the tests and manuals were obtained each was subjected to a technical review. In this review, coefficients of validity and reliability were examined, as were data on norm groups.

A summary of such data is included in this guide. In some cases with new experimental instruments, complete technical data was not available. In such instances, the abstracts are based on information supplied by publishers.

The test abstracts in this publication include a description of the components of the test, norms used, coefficients of reliability and validity, and the advantages or uses of the tests. The tests are grouped in three categories: (1) career/vocational education, (2) personality inventories, and (3) measurement inventories relevant to industrial settings. The publication also contains an index of the various publishing firms and addresses from which the materials can be ordered.

The tests reviewed in this publication are by no means intended to be exhaustive. This User's Guide is intended as a handy reference for school counselors working with vocational/career education at both the high school and post-secondary levels. Potential users can then decide if the test is appropriate to their needs.

Eleanor Wong

Barbara Smisko

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Definition of Terms*

Average Deviation - A measure expressing the average amount by which the individual items in a distribution deviate from a measure of central tendency such as the median or mean.

Coefficient Alpha - The mean of all split-half coefficients from different splittings of a test; an estimate of the correlation between two random samples of items from a universe of items like those in the test.

Concurrent Validity (of a test) - validity based upon a correlation with a criterion variable that is measured at about the same time as the test is administered.

Construct Validity - validity evaluation by investigating what quality a test measures, that is, by determining the degree to which certain explanatory concepts or constructs account for performance on the test.

Content Validity - validity demonstrated by showing how well the content of the test samples the class situations or subject matter about which conclusions are to be drawn; the test user wishes to determine how an individual performs at present in a university of situations that the test situation is claimed to represent.

Criterion-related Validity - validity demonstrated by comparing the test scores with one or more external variables considered to provide a direct measure of the characteristics or behaviors in question; may take the form of an expectancy table or, most commonly, a correlation relating the test score to a criterion measure; the test user wishes to forecast an individual's future standing or to estimate an individual's present standing on some variable of particular significance that is different from the test.

Cronbach's Alpha - (see Coefficient Alpha)

Curricular Validity - evidence of test validity shown by agreement between test content and curricular content and test objectives and curricular objectives.

F-test (analysis of variance) - an arithmetic procedure for treating the data for the criterion variable; it results in a partition of the total sum of squared deviations (of all observations) from the mean into sums of squared attributable to the various experimental effects, to the interaction among them, and to sampling error; thus it facilitates tests of the significance of these experimental and interactional effects.

Intercorrelations of Scales (Reliability) - any of the $n(n-1)/2$ coefficients of correlation that may be computed among n variables.

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*Good, Carter V., Editor. Dictionary of Education. New York: McGraw-Hill Book Company, 1973.

Internal Consistency - a coefficient of reliability of the type based on internal analysis of data obtained on a single trial of a test or other evaluation instrument, e.g., by the analysis of variance method or the split-halves method.

Kuder-Richardson Formulas - formulas for estimating the reliability of a test from information about the individual items in the test, or from the mean score, standard deviation, & number of items in the test; permit estimation of reliability from a single administration of a test without the labor involved in dividing the test into halves, so that their use has become common in test development; not appropriate for estimating reliability of speed tests.

Multi-stage Probability Sample - sampling carried out in successive stages; e.g., selecting several clusters randomly from each of a number of stratified clusters.

Norm - (1) The standard or criterion for judgement; (2) In psychology, a single value or range of values constituting the usual performance of a given group; any measure of central tendency or a range of values on each side of that measure; the range to be included in the norm is arbitrary but is usually no greater than twice the standard deviation.

Norm-referenced Norms - measures in which test items are modified and changed to ensure that a normal distribution occurs.

Odd-even Reliability - (see Split-Half Reliability)

Pearson Product-moment - a pure number limited by the values +1.00 and -1.00 that expresses the degree of relationship between two continuous variables when the arrays of each are homoscedastic; may be calculated from various formulas.

Point-biserial r - the correlation between a two-categoried or dichotomous variable and an n-categoried variable when the variant value of the two categories of the dichotomous variable are assumed to be separate points and not divisions of a continuous variant as in a biserial correlation.

Predictive Validity (of a test) - validity based upon correlation with a criterion variable that's not available until some time after testing (e.g., school grades).

Reliability - (1) worthiness of dependence or trust; (2) (measure) the accuracy with which a measuring device measures something; the degree to which a test or other instrument of evaluation measures consistently whatever it does in fact measure.

Spearman-Brown - a formula used to estimate the correlation between the entire test (or other variable) and a comparable alternative form.

Split-half Reliability - reliability of a test or other variable measured by splitting it into comparable halves (usually the odd-numbered items & the even-numbered items), correlating the scores of the two halves, and applying the Spearman-Brown prophecy formula to estimate the correlation between the entire test (or other variable) and a comparable alternative form. Odd-even method of reliability, split-halves method and split-test method are also terms used to indicate reliability arrived at through this method.

Stability - reliability of a test as determined by the method of correlating the scores made by the same individual's on two administrations of the test.

Standard Deviation - a widely used measure of variability consisting of the square root of the mean of the squared deviations of scores from the mean of the distribution. In a normal distribution, if a distance equal to the standard deviation is laid off in each side of the mean, 68.26% of the observations will be included.

Standard Error of Measurement - an estimate of the dispersion of a group of obtained scores from the corresponding true scores.

Stanine Scores - a normalized score on a 9-point one-digit scale in which the successive score values represent intervals of ½ of a standard deviation with the middle interval set at five and in which the proportion of examinees at each score is the proportion of the normal curve area corresponding to the interval. Score 1 represents the lowest 4%, score 2 the next 7%, score 3 the next 12%, scores 5, 6, 7, 8 & 9 represent the next 17, 20, 12, 7 & 4 percentiles respectively.

Test-Retest Reliability - a method of estimating the reliability of a test by correlating the scores made by the same individuals on two administrations of the test.

T-Score - (1) a standard score with a mean of 50 and a standard deviation of 10 which is a linear transformation of the raw score; (2) a normalized standard score with a mean of 50 and a standard deviation of 10, distribution is normalized by assigning values based on %ile equivalents of normal-curve z-score values.

t-test - a statistical test resulting in evidence for the acceptance or rejection of a null hypothesis; the ratio of a statistic to its standard error; t is mathematically equal to the critical ratio, but provides a more critical test than does the normal probability table.

Validity - (1) the quality of being grounded on truth or fact; (2) in experimentalist logic, the strength and effectiveness of a proposition which, when used in a problematic situation forwards inquiry by leading toward solution of the problem and a resolution of the entire situation; (3) (measure) the extent to which a test or other measuring instrument fulfills the purpose for which it is used; usually investigated by an analysis of test content or by a study of relationships between test scores and criterion variables, independence of method being a common denominator among the major types of validity excepting content validity.

Career Planning Program (Grades 8-11) - The American College Testing Program (1976)

The emphasis in the Career Planning Program is on career exploration. The CPP 8-11 assesses student experiences, interests, and abilities and helps the student identify and explore career options. The program may also be adapted for use as a "mini-course" in career guidance. In addition to providing traditional score information, the CPP 8-11 Student Report relates measured interests and abilities to job clusters and job families.

Booklet 1 Exploring You & Your Career - It is the key component of the CPP 8-11. Not only does it contain the experience & interest inventories (pp. 35-39), it also introduces basic career development concepts and career planning resources. Moreover, it serves as a student workbook, prompting active involvement in the exploration, planning, and decision-making steps essential to sound career choice.

1) About Careers

2) Job Families: Your Home Away From Home

3) Self-Awareness

4) Educational Avenues for Your Career Inventory

5) Finding Yourself in the World of Work

6) Self/Career Exploration Now!

7) Travel Guides for your Career Journey

8) Inventory of Experiences, Plans, & Interests

9) Where to Get Help with Career Planning

Booklet 2 Ability Measures - The ability measures determine student's aptitudes in six kinds of skills: Mechanical Reasoning, Numerical Skills, Space Relations, Reading Skills, Language Usage, and Clerical Skills.

Student Report - The student report merges all three measures--ability, interest, experience--into a single document. The stanine scores reported for the ability and interest scales, encourage students to see their scores as ranges rather than precise, set points. Verbal labels ("few," "some," etc.) describe the relative number of the student's career related experiences.

Scores are also applied to the "World of Work" chart so that students may easily perceive the job clusters and families they should explore. The Report is an exploration starting point, not an end to students' career dreams.

National Norms & Score Scales

CPP 8-11 norms are based upon a nationwide sample of some 32,000 students in 200 schools located in 33 states and selected according to region of the country, size and socioeconomic status of community. The norms are based on a multistage probability sample of 8th, 9th and 11th grade students tested in the Spring of 1973.

Reliability

Internal estimates of reliability for the CPP 8-11 scales were obtained from a randomly selected 10% sample of the 28,298 norm group students in grades 8 and 11. (Grade 9 reliabilities were also calculated but omitted in the discussion because of the high degree of similarity with the reliabilities for grades 8 and 11.)

Coefficient Alpha (Cronbach) was used as an internal estimate of reliability for the interest and experience scales; while the Kuder-Richardson Formula 20 (KR-20) was used for the ability measures.

The internal estimates of reliability for the Interest & Experience Scales are generally quite respectable for 15-item scales. Median estimates of reliability for the six VIP scales (Vocational Interest Profile) were .89 and .90 for grades 8 and 11. For the six Experience Scales, the median value were .77 and .79.

Internal estimates of reliability for the Ability Scales (constructed as wideband measures) range from moderate (.77 for Mechanical Reasoning) to high (.91 for Space Relations).

Test-Retest Reliability

Test-retest reliability studies were conducted using the CPP 8-11 Ability, Interest, & Experience Scales. In each study there was an interval of about nine weeks between the first and second administration of the CPP 8-11 scales. Eight norm group schools participated in these studies--four at the 9th grade and four at the 11th grade. (These schools were not randomly selected.)

For the 9th grade sample, test-retest correlations for the Ability Scales ranged from .59 - .80 with the median being approximately .70. For the 11th grade sample the test-retest correlations ranged from .75 - .87 with a median of approximately .83.

Test-retest correlations for the six Interest Scales ranged from .70 - .85 with a median of .80 for the 11th grade sample.

Standard Errors of Measurement

SEM's for CPP 8-11 measures are also presented in stanine units so that comparisons can be made with the stanine bands in the Student Report.

The SEM's range from .6 - 1.1 with only a few exceptions involving grade 9 test-retest correlations.

Validity

Three types of Criterion-Related Validity evidence are available for Career Planning Program measures.

1) The effectiveness of the measures in predicting the performances of students enrolled in various types of academic, vocational & technical courses.

2) The effectiveness of the measures in differentiating among "successful and satisfied" students enrolled in various vocational-technical programs, transfer programs, and 4-year college majors.

3) The effectiveness of the measures in differentiating among students grouped into job families according to their occupational preferences.

Construct validity is reported in extensive tables using Vocational Preference Inventory, Differential Aptitude Tests, Kuder General Interest Survey, & Ohio Vocational Interest Survey Scales. Most scales were within acceptable ranges.

Advantages

The program -

- measures a student's abilities, interests and career-related experiences

- reports results in a single profile enabling students and counselor to relate scores easily to the real world of work

- fosters students' awareness of the relationship of their own experiences and specific career areas

- stimulates and enhances students' self/career exploration & career planning/decision-making

- helps student identify & explore personally relevant career options

- widens career horizons

For the Counselor

CPP 8-11 eliminates the difficulty of interpreting data from separate aptitude tests and interest inventories, then trying to merge the information meaningfully for students. Moreover, the inventory of career-related experiences provides the counselor with information about each student's experential knowledge of occupational activities.

The Assessment of Career Development (Grades 8-11) - The American College Testing Program (1974)

The Assessment of Career Development (ACD), a new kind of guidance assessment program, provides information useful to counselors in tailoring career guidance programs to student needs. Designed for use with 8th through 11th graders, the ACD assesses occupational awareness, self-awareness, and career planning knowledge and involvement in a single program. It also summarizes student reactions to their career guidance experiences. Information is provided to ACD users in both Group Summary Reports and Student List Reports.

Introducing the ACD - four page leaflet should be distributed prior to testing, to orient student to the concepts of the assessment program.

Student Test Booklet (form C) contains 267 items. These are structured around core aspects of career development: occupational awareness, self-awareness, and career planning and decision-making.

Unit 1) Job Knowledge

Unit 2) Preferred Job Characteristics: Job values, working condition preferences

Unit 3) Career Plans: Job Family List

Unit 4) Career Planning Activities: What you have done already about planning, reactions to career planning activities, "Help Wanted Checklist"

Unit 5) Career Planning Knowledge

Unit 6) Exploratory Job Experience

Unit 7) Local Items

Reports of ACD results - The ACD results are reported for 11 scales and 42 specific questions of the 11 scales; three cover career-related knowledge and eight cover career-related experiences. Exploratory occupational experiences are reported in the form of a general score and separately for each of six occupational clusters. (These clusters span the entire world of work and represent a synthesis of the personal orientations in Holland's career developmental theory, DOT Worker Trait Group dimensions, results of research and various interest inventories, and research on the characteristics of workers in various occupations.)

ACD Group Summary Reports - Tables in the reports include -

- Score distributions, means and standard deviations for the 11 ACD scales

- Percentage of students attaining locally designated "expected performance levels" on the three ACD knowledge scales

- Summaries of student responses to 42 critical questions selected from the total of 267

- Summaries of student responses to 19 locally developed questions (optional)

ACD Student List Reports (alphabetical) - These reports provide -

- Scores on the 11 ACD measures

- Responses to 19 specific questions

National Norms

The ACD norms are based on a multistage probability sample of 8th, 9th and 11th grade students tested in the spring of 1973. Approximately 33,000 students in 200 schools located in 33 states completed the ACD along with the 12 ability and interest measures in ACT's Career Planning Program for grades 8-11.

Norms are provided separately for male, female and total groups for each of grades 8, 9 and 11. To facilitate comparisons with local results, the format for the national norms parallels the format used in the ACD Group Summary Report.

Reliability

Reliability data for the ACD are based on the 10% sample of norm group students used in the study of scale intercorrelations for validity--28,298 normal group students in grades 8, 9 and 11.

Data for the seven Exploratory Occupational Experience Scales are based on Cronbach's coefficient alpha. Internal consistency coefficients (e.g., K-R 20) could have also been used for the remaining scales. However, these scales were not constructed to be homogeneous with respect to the behaviors domain being sampled. In fact, inspection of the ACD Content Outline will show a substantial amount of heterogeneity, thus making internal consistency estimates of reliability inappropriate.

In order to eliminate the possibility of artifically inflating reliability estimates, data for students in the reliability study were not used either in the formation of half scales or in the selection of items for ACD.

The Spearman-Brown formula was used to obtain reliability estimates. Reliability estimates for the longer ACD scales (scales 1, 3, 4 and 5) ranged from .71 - .93 for grade 8; .75 - .93 for grade 9; and .79 for grade 11.

The reliability coefficients for several of the shorter ACD scales border on the minimum values acceptable for the interpretation of scores to individuals.

The reliabiability of ACD scales for separate sex groups was studied for the same grade 11 sample used in the intercorrelation studies. For all scales, the reliability coefficients for males were slightly higher than for females (e.g., .88 vs. .86 for Occupational Characteristic Scale). The higher scale reliabilities for males were accompanied by larger standard deviations. As a result, the standard errors of measurement for males and females were approximately equal.

Validity

In its reliance on content validity, the ACD is similar to most standardized achievement tests currently available.

The ACD does not claim to measure the psychological dimensions of vocational maturity or any other psychological constructs. Neither is its purpose to predict future behavior, although it may be found to be useful when so applied. The ACD samples a predefined domain of career development behavior generally thought to be of practical significance in evaluating and modifying school career guidance programs.

Because the content validity of any test varies from one school setting to another, depending on local objectives and programs, final judgment of ACD content validity must be made by potential users in the context of their own situation.

Several empirical studies of ACD scale characteristics have been completed and others are currently underway and will be published upon completion, as ACT Research Reports.

No content validity scores are reported.

Scale Interrelationship

Intercorrelations of ACD scales were obtained for a randomly selected 10% sample of the 28,298 norm group students in grades 8, 9 and 11. Since the results for the three grades were highly similar, only grade 9 data are reported.

There is very low relationship between scores on the knowledge scales, and the experience and involvement scales. The correlation between Career Planning Knowledge and Career Planning Involvement Scales is .05 (whereas the correlation between Career Planning Knowledge and the Occupational Characteristics Scale is .67). Likewise the correlation between the Occupational Characteristics Scale and the general Exploratory Occupational Scale is only .10.

Advantages

This singular measurement is designed to aid counselors and administrators in finding out -

- how much students know about occupations & career planning
- what they have done about career exploration

- what kinds of help they are looking for
- what effect the school's career development programs have had on them

Career Education Tests - Evaluative Research Associates (1975)

This is a series of tests composed of: (1) Orientation of Career Concepts (OCC); (2) The Student Attitude Survey (SAS); and (3) Career Knowledge (CK)--designed to measure knowledge and attitudes in three main areas: Knowledge of Self, Knowledge of Others, & Knowledge of the World of Work.

1) ORIENTATION OF CAREER CONCEPT SERIES (OCC) - Grades 3-12

A test designed to assess the knowledge and concepts associated with career awareness. It is designed for use at the intermediate grade levels, primarily grades 4 through 8.

The OCC is based on a content analysis of an extensive study conducted by Dr. Barbara Fulton with young children, the Occupational Outlook Handbook and the Dictionary of Occupational Titles.

The scales for the OCC are derived from 200 items arranged in 10 different test booklets, with each booklet containing 20 test items. The items are five response multiple choice items. The scales are as follows:

- Work Awareness: This test is designed in story form to assess the student's ability to relate children's daily activities to adult work.
- Worker Activities: This test measures the student's knowledge of what different workers do in their various occupations.
- Vocational Vocabulary: This test measures the student's knowledge of work-related words.
- Absurdities: This test assesses, through the usage of simple line drawings, the student's awareness of occupational incongruities.
- Occupational Similarities: This test measures the student's ability to identify occupations that have common aspects.
- Occupational Tools: This test measures the student's knowledge of the tools, machines, or instruments used by workers.
- Work Stories: This test is designed in story form to assess the student's ability to relate an individual's interests, abilities, and possible occupations.
- Working Conditions: This test measures the student's knowledge of the working conditions of various occupations.
- Occupational Training: This test measures the student's knowledge of the length of training required for entry into various occupations.

- Workers' Earning: This test assesses the student's knowledge of the relative amount of money a person may expect to earn in different occupations.

Norms

No norm groups are reported in the manual. The authors suggest developing local norm-referenced and criterion-referenced groups.

Reliability

Internal consistency reliability:

The tests were administered (Oct. 1973) to 875 students in Grades 3 through 8. The students were drawn from 3 inner city elementary schools. It was a mixed racial population, with the majority of students being black.

The tests were also administered (Oct. 1973) to 1,893 students in Grades 3 through 12 in a primarily white suburb of the same city.

The Alpha coefficient reliabilities were mostly in the range of .60's - .80's. In a few instances, primarily at the lower grade levels, the reliabilities are quite low.

Standard Error of Measurement

The values were determined from the alpha-coefficients. The calculations were done on raw scores and converted to T-score equivalents.

Stability

To obtain estimates of stability for the OCC, both urban and suburban samples of students were administered the test in Oct. 1973 and April-May 1974. The scores were correlated for each grade from Grades 3 through 12.

For the urban sample the median reliability estimates range from .32 - .70.

For the suburban sample the median reliability estimates range from .40 - .68.

Intercorrelation of Tests

The intercorrelations of the 10 subtests were determined on 1,893 students in Grades 3-12. Because of the heterogeneity of the sample, the correlations reported are maximum values.

The tests are highly correlated with one another. This is to be expected since they all measure concepts in a single area, career knowledge.

Validity

Curricular Validity:

The items on the OCC were validated against three different criteria:

- Student responses on the Career Concepts Inventory
- Dictionary of Occupational Titles (DOT)
- Occupational Outlook Handbook

All nine DOT categories are represented in the tests. The number of different occupations in a test runs from a high of .95 to a low of .5.

In a recent study (1974) the OCC and Career Maturity Inventory (CMI) were compared as to the numbers of different occupations represented. The OCC included over twice as many occupations as the CMI.

Uses

The primary purpose of the OCC is to provide teachers or other school district personnel with information pertaining to student achievement in career awareness. Analysis of the results can aid counselors, vocational counselors, teachers in providing appropriate instruction to students, and program/project directors in assessing the effectiveness of their career education programs.

2) STUDENT ATTITUDE SURVEY (SAS)

The Student Attitude Survey (SAS) consists of two sets of tests designed to assess student attitudes toward self and others, and toward school and work.

The SAS has two Forms, B & D, to be used with students in Grades 3 through 12, and two Forms, A & C, to be used with primary level students. The format for Forms B & D is consistent with the OCC and can thus be easily coordinated with the career testing program.

The SAS is based upon counseling experience, review of attitudinal measurement literature, and the extensive experience of ERA staff in program and project evaluation. There are 11 attitudinal scales on SAS, Forms B & D, six generated from the items on Form B and five from Form D. The Self, Other, School, Achievement Need, and Work Scales were logically determined.

Forms A & C are modifications of Forms B & D, with the items put into pictorial form.

Test reliability

Internal consistency:

The internal consistency reliabilities for the SAS, Forms A & C, were estimated using the odd-even method of calculation, adjusted using the

Spearman-Brown Prophecy formula. N=60 students drawn from several classrooms in Grades Kindergarten through 3. The test reliabilities range from .64 - .78.

The reliabilities of Forms B & D were determined using the alpha-coefficient N=1,893 students in Grades 3 through 12. The test reliabilities range from .65 - .86 for Form B, and .70 - .86 for Form D.

Stability

The stability indices for Forms A & C of the SAS were estimated from a study of 24 elementary students administered the tests twice over a 3-month period.

	Scale	Stability
Form A	Self	.35
	Others	.40
Form C	School	.32
	Work	.34

Forms B & D were administered twice over an 8-month interval to 400 students in Grades 3 through 12.

	Scale	Stability
Form B	positive self	.55
	negative self	.60
	positive other	.36
	negative other	.59
	positive personal	.59
	negative personal	.59
Form D	positive school	.51
	negative school	.61
	achievement need	.49
	positive work	.69
	negative work	.55

Validity

Construct:

The construct validity of the tests has been determined by stages: (1) logical development of scales and items in a transparent inventory; and (2) item correlations were determined for a sample of about 2,000 students. Most of the within item intercorrelations were greater than .5 and most of the between item intercorrelations were less than .2.

Uses

The primary purpose of the SAS is to provide school district personnel with information pertaining to student attitudes according to

self, others, school and work. Analysis of the results can aid counselors, teachers, and other personnel in the assessment of student needs and problems. Moreover, the SAS can be used by program/project directors in assessing the effectiveness of attitudinal components of career education or other programs.

3) CAREER KNOWLEDGE (CK)

The Career Knowledge (CK) is designed to assess the knowledge and concepts of primary level children of the work world.

The CK is based on a content analysis of an extensive study conducted by Dr. Barbara Fulton in 1971. It is a non-verbal test of three parts:

Occupational Similarities: This part is designed to assess the ability of students to match occupations according to which ones are most alike.

Occupational Differences: This part measures the ability of students to select which occupations are least alike.

Occupational Tools: This part measures the ability of students to identify the tools used in selected occupations.

Reliability

The CK was administered to 290 students in Grades Kindergarten through 2. The students were drawn from five different elementary schools, providing a mixture of background variables.

The reliabilities were determined using alpha-coefficient. These range from .58 - .72.

Stability

To obtain estimates of stability for the CK, the test was administered to 290 students in the early Fall of 1973 and late Spring of 1974, an 8-month interval between test administrations.

The stability coefficients range from .51 - .63.

Validity

Curricular Validity:

The subscales of the CK were designed to assess the three primary aspects of career knowledge. The items were reviewed according to their classification within the categories of the DOT. No values for validity are reported in the manual for Career Knowledge.

Uses

The CK can be used for assessment of children in Grades Kindergarten through 3, and students with special reading problems.

Career Skills Assessment Program - (Experimental Edition 1977) - College Entrance Examination Board

The Career Skills Assessment Program, a combination guidance and assessment program, is being designed to meet two major objectives: to provide assistance and guidance for individuals in their career decision-making and planning, and to provide measures to aid institutions in evaluating the extent to which students have mastered career development concepts. (The two needs have been identified by representatives from the state education agencies of Georgia, Maryland, Minnesota, New Jersey and Ohio who have joined the College Board in a Career Education Consortium.)

The Career Skills Assessment Program consists of six single-topic measures:

1) Self-Evaluation and Development Skills (focuses on skills in evaluating individual attributes and applying that knowledge to career planning)

2) Career Awareness Skills (focuses on awareness of educational, occupational, and leisure opportunities)

3) Career Decision-Making Skills (focuses on the process by which students decide what to do with their lives)

4) Employment-Seeking Skills (focuses on students' ability to locate and obtain a job)

5) Work Effectiveness Skills (focuses on work attitudes, job-holding and adjustment skills, and career advancement skills)

6) Personal Economics Skills (focuses on students' possession of money management skills essential to survival in the American economic system)

Each skills area has three components:

1) Exercise Booklet
2) Response sheet (both self-scoring and machine scoring)
3) Interpretive Guide

Progress to date

All six measures are currently under development. Items in five of the measures have been field-tested, and the experimental edition of the Employment-Seeking Skills measures has been administered to approximately 1500 students in the consortium states. The Employment-Seeking skills materials were sent for review and evaluation to selected counselors and administrators in each of the consortium states.

Analysis of 233 questionnaires revealed the following findings:

- 99% indicated that there was a need for improved guidance and assessment measures, and ranked all 6 measures as important or very important

- 92% thought Employment-Seeking Skills instrument would measure students' skills adequately
- 99% thought the self-scoring feature of the response sheet was useful
- 85% said that summary reports would be useful, particularly by classroom and school building
- 99% viewed the guide as important or very important

The Employment-Seeking Skills materials (Experimental Edition)

There are four documents:

1) Specifications for Employment-Seeking Skills: The paper has the five skills which are assessed in the measure:
   - anticipating job prospects
   - finding and interpreting facts and sources of information about available jobs
   - identifying appropriately written letters, resumes, and applications for potential employers
   - describing appropriate appearances and behavior as one is interviewed and evaluated for a job
   - evaluating when a specific job fits a person's needs and interests

(So that the individual can evaluate examples of how each skill is measured, specific items--found in the Exercise Booklet--are cited for the individual's references)

2) Employment-Seeking Skills Exercise Booklet: (reusable) Number of questions: 70. The exercises were designed to help reveal the students' skill and knowledge in various aspects of seeking employment.

3) Employment-Seeking Skills Answer Sheet: one page for students to tally their own scores; also a page where students can easily see which were the preferred answers.

4) Guide to Employment-Seeking Skills: The Guide has been designed to provide students additional information about Employment-Seeking Skills. In addition to a brief story about a person seeking employment, it contains suggestions, resources, and explanations for each of the 70 items.

Note

- The first two measures--Employment-Seeking Skills and Career Decision-Making Skills--will be made available for advance use in the five Consortium states in 1978.

- The entire program of six measures, with all supporting materials (sound/filmstrip in-service package, a user's guide, and a technical manual) will be ready for national use in 1978-79.

Career Decision-Making Program - Appalachia Educational Laboratory (1977) (available for implementation in Fall 1977)

The Career Decision-Making Program is designed to help secondary school students gain greater understanding of themselves and the world of work, by facilitating the development of exploratory and decision-making skills. All materials have been extensively field tested nationally, and are under revision. As a result, no technical data is available.

It has two elements or components:

1) The Career Information System (CIS): a DOT based Career Information System

2) Exploring Career Decision-Making (ECDM): 15 Career Guidance Units

The total Career Decision-Making Program is centered on the idea that career guidance must be concerned with the whole person in the context of society and not solely with occupational choice. Education, family, political, and community involvement are all considered as part of a person's career. The program expects to facilitate the following student competencies:

1) identify career activities as a means to life goals

2) use self-exploration and occupational exploration in shaping careers

3) develop decision-making abilities

4) relate personal characteristics to occupations in order to identify and/or evaluate career alternatives

5) identify major influences affecting career decisions

6) identify ways in which society and self interact through career

7) develop the ability to manage the variables involved in shaping careers

Career Information System (CIS)

Basic CIS materials include:

1) CIS Professional Manual

2) Worker Trait Group Guide

3) Worker Trait Group Index to Occupational Information

4) Worker Trait Group Keysort Deck

5) Preprinted File Cards

6) Worker Trait Group File Content Notebook

7) CIS Guide

8) School Subject-Occupational Index

9) School Subject-Worker Trait Group Chart

10) Individualized Activities for Career Exploration

11) CIS Filmstrip Package (9 filmstrips and 5 cassettes)

12) Checklists

Exploring Career Decision-Making (ECDM)

The 15 Career Guidance units include:

1) Career Awareness
2) Decision-Making
3) Self-Exploration
4) Occupational Exploration

Units 1-4 introduce basic explanation and decision-making skills within the framework of a career. Students will use these skills throughout the program.

5) Interests
6) Work Activities
7) Work Situations
8) Credentials and Competencies
9) Aptitudes and Physical Demands
10) Work conditions

Units 5-10 use the CIS to provide experiences in exploration of Worker Trait Groups and occupations in terms of personal characteristics.

11) School Achievement
12) Economic Influences
13) Social and Family Influences

In Units 11-13 students examine major social, environmental and economic influences on career.

14) Career Planning and Decision-Making
15) Your Future

These 2 units help students utilize exploration and decision-making skills in developing or clarifying career plans, including tentative occupational choices.

Materials are:

- Exploring Career Decision-Making - Textbook
- Activity Booklet for Exploring Career Decision-Making
- Professional Guide for Exploring Career Decision-Making
- Filmstrip Package - 9 filmstrips with 5 cassettes
- Worker Trait Group Guide

Note

All materials will be published through:

McKnight Publishing Company
Bloomington, Illinois 61701

Planning Career Goals (Grades 8-12) - American Institutes for Research (1976)

The Planning Career Goals (PCG) program has been designed to assist the counselor in facilitating the planning function with students in Grades 8 through 12. PCG was developed under the guidance of Dr. John C. Flanagan by the American Institutes for Research based on Project TALENT.

The testing component of PCG includes three test books:

1) Interest Inventory: 300 items in three parts--occupations, occupational activities & current activities.

2) Information Measures: 240 items that produce 12 scores corresponding to the career groups.

3) Ability Measures: The 10 PCG Ability Measures are:

- Reading comprehension (40 items)
- Mathematics (24 items)
- Abstract Reasoning (22 items)
- Creativity (24 items)
- Mechanical Reasoning (25 items)
- English (48 items)
- Quantitative Reasoning (22 items)
- Vocabulary (60 items)
- Visualization (25 items)
- Computation (76 items)

The PCG program also includes three basic components:

1) Planning Your Career: Student guide which includes five sections:

- an introduction to planning life and career goals
- finding out about yourself
- learning about careers
- thumbnail sketches (brief description of the educational & ability requirements for each of the 12 career groups)
- comparing yourself with people who entered various jobs

2) Career Planning Report: (only available through machine scoring by the CTB/McGraw Hill scoring center.) Narrative report, responses, and comparisons.

3) Career Handbook: contains a unique collection of discussions on the nature of & requirements for jobs, along with data showing graphically 151 profiles of the interests and abilities of jobholders.

Norms

In April 1975, 6,100 students from 28 secondary schools in 18 states across the country were tested. Students in grades 8, 9, 10 & 11 were used in the sample.

Reliability

The reliability coefficients are split-half correlation coefficients computed using Angoff Formula 16.

In the case of the Ability and Information Measures the time of each scale were divided on a priority basis into the two sets needed for obtaining split-half reliability coefficients.

Reliability coefficients were as follows:

Interest Inventory	Grade 8	Grade 9	Grade 10	Grade 11
	(N=653)	(N=760)	(N=958)	(N=676)
	.87 - .97	.87 - .97	.84 - 1.00	.84 - .98
Information Measures	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**
	(N=657)	(N=764)	(N=953)	(N=677)
	.73 - .87	.73 - .89	.70 - .86	.76 - .87
Ability Measures	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**
	(N=657)	(N=757)	(N=962)	(N=686)
	.71 - .94	.70 - .94	.71 - .93	.73 - .91

Standard Errors of Measurement

For the Interest Inventory nearly all the SEM's are between .15 and .25 when expressed in terms of the basic 5-point scale.

For the Information Measures SEM's vary between .7 and 1.1 when expressed in terms of stanine units.

For the Ability Measures most SEM's are between .5 and 1.1 when expressed in terms of stanine units.

Validity

The measures of Interest, Information, and Ability have been shown to have predictive validity by analyzing the data from the 5- and 11-year Project TALENT follow-up studies. The predictive weights used in obtaining combined present ability stanines are directly derived from these follow-up data.

No attempt is made in this program to summarize the data on the inter-relationships of Interests, Information and Ability scores in the various career groups. The relationship of Interests and Abilities in careers is shown in detail in the PCG Career Handbook and is implicit in the information comparisons on the PCG Career Planning Report. Therefore, no validity scores are included in the Technical Bulletin.

Uses

- To use the data about each student's values, interests, information and abilities, counselors must be able to compare those data with patterns of values, interests, information and abilities characteristic of secondary school students who later found personal satisfaction and fulfillment in various life and career activities.

- The PCG system can be used as the principal component in a guidance program or it can become a key feature in the context of the entire career education program. Further, it is designed to permit simple administration to groups or to individual students.

Individual Career Exploration - Anna Miller - Tiedeman in consultation with Anne Roe (1976)

The Individual Career Exploration (ICE) is a self-administered, self-scored inventory of career interests for students in Grades 8-12. It is designed to help students focus on future occupations in relation to their current interests, experiences, abilities, and ambitions. Because this is a relatively new instrument, no psychometric data are available.

The ICE inventory is based on the Roe theory of occupations which divides occupations into eight groups and six decision levels. The eight occupational groups are:

1) Service

2) Business Contact

3) Organization

4) Technology

5) Outdoor

6) Science

7) General Culture

8) Arts and Entertainment

The six Roe decision levels can be interpreted according to the following hierarchy:

Level 1 - Professional and managerial, independent decision

Level 2 - Professional and managerial, some decisions with given restraints

Level 3 - Semi-professional and small business

Level 4 - Skilled labor, trained

Level 5 - Semi-skilled labor, trained on the job in certain areas

Level 6 - Unskilled labor, without specific skills

Materials

1) Student Booklet: has 5 sections - Interests, Experience, Occupations, Skills and Abilities, and Decision Level.

2) Classification of Occupations by Group and Level Booklet: students use this to identify the specific occupations in their groups that interest them most.

3) Job Information Checklist: should be used for collecting information about a specific occupation.

(The ICE relates well to the computerized Vocational Information Service, the Occupational Outlook Handbook, and the Dictionary of Occupational Titles.)

Note

- The inventory can be administered to individuals or to groups. Administration is flexible, so that students may work through the entire inventory in one session, or they may work on only one or two sections at a sitting.

- This self-scoring inventory gives the counselor a means to capture and deal with students' interests immediately.

Minnesota Vocational Interest Inventory (MVII) - Kenneth E. Clark & David P. Campbell (1965)

The Minnesota Vocational Interest Inventory (MVII) has been prepared to provide systematic information on the interest patterns of men in non-professional occupations. It is intended as an aid to counselors working with students and others who are contemplating occupations at the semi-skilled and skilled levels. For each individual who completes the MVII, scores are derived to provide an index of similarity between his interests and the interests of men in a variety of nonprofessional occupations.

The MVII includes 474 items grouped in threes, making a total of 158 triads. This is a forced-choice method in which the individual is required to mark a total of 316 responses, half of them "like" and half of them "dislike."

Description of the Scales

1) Occupational Scales: Provide a means of comparing an individual's interest with those of persons employed in particular occupations. Each of these scales bears the name of the occupational group which served as the basis of its development, e.g., Baker, Carpenter, Electrician, etc.

2) Homogeneous Scales: These scales were derived by identifying clusters of items that are related to each other. Items that correlated positively with each other were selected; there was no attempt to decide subjectively which items should be classified into various clusters. Names were assigned to the clusters after inspection of the items falling into each cluster, viz.--Mechanical, Health Service, Office Work; Electronics, Food Service; Carpentry; Sales-Office; Clean Hands; Outdoors.

The individual's results on MVII are reported on a profile sheet.

Profiles and Norms

On the profile sheet, the Occupational scales have been clustered into groups.

1) "white-collar, clerical" group contains the following scales: milk wagon driver, retail sales clerk, stock clerk, printer, tabulating machine operator--with one exception, all of the possible correlations between scales within this cluster are higher than .70.

2) "blue-collar, mechanical" contains the following scales: truck mechanic, industrial education teacher, sheet metal worker, plumber, machinist--the median correlation between scales in this cluster is .65, with all but two coefficients equal to or greater than .60.

These two clusters seem to represent opposite ends of the same dimension, as the median correlation between scales in one cluster and those in the other cluster is--.72.

Three smaller groups are also indicated on the profile scale.

Standard Scores

The standard scores reported on the profile are based on the mean and standard deviation of the appropriate criterion group for each scale. Standard scores on the Homogeneous Scales are calculated by using the mean and standard deviations of the Tradesmen-in-General group (N=240 selected from 16 different civilian/non-professional occupations).

Reliability

Test-retest reliability for Occupational and Homogeneous Scales over a 30 day interval are based on 98 students from the Dunwoody Institute, Minneapolis, Minnesota.

For the Occupational Scale the range is from .70 - .88.
For the Homogeneous Scale the range is from .62 - .87.

Validity

Occupational Scales:

All of the occupational scoring keys are "empirical" keys since they have been developed by scoring responses that differentiate men in an occupation (the criterion group) from Tradesmen-in-General (the reference group).

The index used to indicate the relative degree to which each key performs its function of separating workers in an occupation from the TIG reference group is the "percentage of overlap." The cross-validation group permitted a check on the success of the empirical key as a discriminator when applied to a new group.

Point-biserial r's range from about .40 to .80.

Prediction of achievement:

One representative study is described. It is based on a group of 547 students in a Navy Electronics Technician School.

For this group, the interest measure accounted for more of the variation in school grades than did any one of the measures of general and special ability. The multiple correlation of the four combined predictor variables (Navy General Classification Test, Arithmetic Reasoning Test, Mechanical Aptitude Test, and Navy Vocational Interest Inventory) with the criterion of achievement is .40.

Uses

- The Occupational Scales are more helpful in predicting which occupational group the individual's interests most resemble. The Homogeneous Scales are useful in understanding the pattern of the individual's answers. They are also helpful in understanding the characteristic interests of men in a single occupation.

- Scores on the MVII also may be used to help in making the choice of areas of study in vocational training.
- The authors feel that, for general purposes, the inventory should be suitable for students in 9th grade or higher, or for persons who are at least 15 years of age.
- The MVII is less useful in an employment situation than it is in a counseling situation.
- The inventory is best described as a classification device rather than as a selection device.

The Pier-Harris Children's Self Concept Scale (The Way I Feel About Myself) - Ellen V. Piers & Dale B. Harris (1969)

The Pier-Harris Children's Self Concept Scale entitled "The Way I Feel About Myself," is a self report instrument of 80 items using a forced-choice format. The Scale was designed primarily for research on the development of children's self attitudes & corelates of these attitudes.

Norms

The norm group consists of 1,183 students from one Pennsylvania school district. These 4th, 6th, 8th, 10th & 12th grade students were tested in 1966.

Reliability

Internal Consistency:

The Kuder-Richardson Formula 21 was employed with resulting coefficients ranging from .78 - .93. As a check the Spearman-Brown odd-even formula was applied for half of the 6th (N=63) and 10th (N=58) grade sample with resulting coefficients of .90 and .87 respectively. (Based on original 95-items scale using Pennsylvania Public Schools.)

Stability

A retest was given after four months on one-half of the standardization sample (four 3rd grade classes; four 6th grade classes, four 10th grade classes) in a large school system. In the elementary grades, classes were chosen from several school systems. In the elementary grades, classes were chosen from different schools; in the high school, slow, average and bright classes participated.

3rd Grade	N=56	Coefficients = .72
6th Grade	N=66	Coefficients = .71
10th Grade	N=60	Coefficients = .72

(Based on original 95-item scale using Pennsylvania Public Schools)

The revised 80-item scale had better reliability. For the two month and four month test-retest a coefficient of .77 was obtained based on 244 5th graders in Oregon Public Schools.

Average Standard Deviation: 13 (over several samples at different age levels)

Standard Error of Measurement: Approximately 6 points

Correlations with Measures of Intelligence & Achievement: The Pier-Harris has been correlated with several intellectual measures, for example:

1) with the Otis--from .04 to .36

2) with WISC a) Intellectual & School Status .43
   b) Verbal Scale .50

Validity

An attempt was made at the outset by the authors to build content validity into the scale by defining the universe to be measured as the areas about which children reported qualities they liked or disliked about themselves (Jersild 1952). Items were written to cover all these areas but during the item analysis non-discriminating items were dropped so that the final scale no longer covers every area to the same degree. Factors from the retained items cut across some of the original Jersild categories but reflect an emphasis on his last two groups, e.g., "Just Me, Myself" and "Personality, Character, Inner Resources, Emotional Tendencies."

Mayer (1965) compared scores on the Pier-Harris with scores on Lipsitt's Children's Self Concept Scale N=98 (special education students 12-16 years of age). The correlation was .68 ($p < .01$).

Cox (1966) compared scores on the Pier-Harris with big problems checked on the SRA Junior Inventory N=97 (Grades 6-9). He obtained correlations of -.64 ($p < .01$) for Big Problems; and -.48 ($p < .01$) for Health Problems.

Construct validity is established by two other names. Children's self reports have typically corresponded only slightly with the way their teachers and peers rate them. Piers (1965) obtained correlations with 4th and 6th graders, which ranged from .06 - .49.

Cox (1966), using subjects in Grades 6-9 from 97 families, found appreciable corelations between the Pier-Harris & teacher and peer ratings of socially effective behavior (.43 teacher rating--.31 peer rating). Higher correlations were obtained for ratings on superego strength (.40 teacher rating--.52 peer rating).

Uses

- For research. The authors suggest that this should still be its primary purpose. (The authors are trying to show that test performance goes along with some of their hypotheses concerning self theory, and that using the scale gives more information about the construct of self concept itself.)

- For use in counseling settings. The Pier-Harris Scale has been found useful when used on an individual basis as part of a test battery. Responses to individual items can be used (like the Mooney Problem Checklist) as aids to interviewing or counseling.

- For use in classroom: It might be used in conjunction with other devices as a screening device in school classrooms to identify children who may be in need of professional counseling.

  (Note: It should be interpreted only with the aid of someone knowledgeable in measurement & statistics, psychology of adjustment, and self theory.)

World of Work Inventory (WOWI) - Robert E. Ripley, Ph.D. (Revised 1975)

The WOWI is essentially self-administered. It consists of four sections containing 516 items:

Part A Identifying Information - This section includes the subject's vital statistics, their stated occupational choices, best liked school subjects and a space for the user's convenience in gathering additional data.

Part B Career Interest Activities - This section consists of 238 items in which the person is asked to respond whether they like, dislike or are neutral to each job-related activity. This is a forced choice method.

Part C Vocational Training Potentials - This section includes 98 items measuring six aptitude-achievement areas.

Part D Job Satisfaction Indicators - This section consists of 180 items measuring 12 job temperament areas. The scales attempt to measure the 12 job temperament areas found in Vol. II of the D.O.T. (Dictionary of Occupational Titles).

Norms

No specific information on the selection of norm groups is available in the Interpretation Manual.

Reliability

Coefficient Alpha with Spearman-Brown corrections applied was used to determine the reliability coefficients of the various scales. A reliability coefficient had to be compiled for each scale as no summing over scales is possible as each is homogeneous.

A carefully selected stratified sample was chosen to determine the overall reliability of each scale. The sample was composed of N=738 composed of 58% females and 42% males representative of age groups from 14 through 62. The journal education level ranged from Grades 8 through 17. Black's, Chicano's, Native Americans and Anglo's, both males and females were represented in each group. The sample was also composed of persons raised in the North, East, North Central, Northwest, Southwest, South Central and South Eastern parts of the United States.

Validity

A stratified sample by age, sex, educational level, minority group membership and occupational groupings was used to determine the intra-item, intra-scale correlations and the inter-scale correlations. There were 7,280 inter-item, intra-scale correlations computed for the 17

Career Interest Activities Scales, the 12 Job Satisfaction Indicator Scales and the six Vocational Training Potential Scales. This resulted in .9136% of the inter-item, intra-scale correlations using the Pearson Product Moment method being significant at or beyond the .001 level.

Uses

- Career Education: Classroom use and research on program effectiveness.
- Vocational Guidance: Group use, Grade 8 through 12, occupational exploration and choice; guidance unit in classroom; curriculum planning. Junior College: Vocational adjustment courses.
- Vocational Counseling: Individual and group, ages 14-54; vocational rehabilitation, corrections and employment service; training placement.
- Employment or Training Placement: Industry, business, private technical trade or business schools.

New Mexico Career Education Test Series (Grades 9-12) - Charles C. Healy & Stephen P. Klein (1973)

The New Mexico Career Education Test Series was developed for and in cooperation with the New Mexico State Department of Education. It is a battery of criterion-referenced-tests that was designed to assess specific learner objectives in the area of career education.

The specific tests are as follows:

1) NM Attitude Toward Work Test (NMATWT) 25 items
The student appreciates the personal and social significance of work.

2) NM Career Planning Test (Forms A & B) (NMCPTA & NMCPTB) 20 items
The student is able to make appropriate decisions about preparing for and selecting an occupation.

3) NM Career Oriented Activities Checklist (NMCOAC) 25 items
The student has taken important steps in order to make an occupational decision.

4) NM Knowledge of Occupations Test (NMKOOT) 25 items
The student understands the characteristics and requirements of different occupations.

5) NM Job Application Procedures Test (NMJAPT) 20 items
The student knows how to apply for a job.

6) NM Career Development Test (NMCDT) 25 items
The student knows and appreciates what is required to hold a job and to be advanced in an occupation.

Norms

Stratified-random samples of 9th grade and 12th grade classrooms throughout the state of New Mexico during the 1972-73 school year are the norm groups. Numbers ranged from about 1,770 students for the NM Career Planning Test (NMCPTA & NMCPTB) to 3,400 students for the NM Attitude Toward Work Test (NMATWT).

Reliability

The internal-consistency reliability estimates were estimated separately for the various tests and for the 9th and 12th grades by computation of the alpha coefficients. These are as follows:

Test	Grade	N	Reliability
NMATWT	9	898	.52
	12	2,525	.51

NMCPTA	9	521	.69
	12	1,245	.65
NMCPTB	9	473	.64
	12	1,328	.65
NMCOAC	9	35	.83
	12	2,367	.87
NMKOOT	9	949	.62
	12	2,409	.67
NMJAPT	9	823	.56
	12	2,374	.67
NMCDT	9	858	.72
	12	2,391	.65

Validity

One approach to the construct validation of a test of educational achievement is to determine whether scores improve with exposure to the educational program designed to make them improve. The t-tests between independent means between the scores for the 9th and 12th graders are as follows:

Test	9th grade mean	12th grade mean	t-value
NMATWT	57.98	58.58	3.19**
NMCPTA	11.33	14.19	16.73**
NMCPTB	11.77	13.50	9.89**
NMCOAC	16.77	25.94	6.49**
NMKOOT	12.71	15.56	21.27**
NMJAPT	10.28	13.30	23.41**
NMCDT	15.19	17.86	19.49**

** Significant beyond the .001 level

Uses

- These tests can be used separately to evaluate the effectiveness of single course programs or course units, or to aid in the guidance of students.

- They can be used as a larger battery to assess strengths and weaknesses of a total school or district program or to assess individual strengths and weaknesses for purposes of counseling and further training.

Career Maturity Inventory (CMI) - John O. Crites (1973)

The Career Maturity Inventory (formerly entitled the Vocational Development Inventory) has been conceived and constructed to measure the maturity of attitudes and competencies that are critical in realistic career decision-making.

The inventory consists of:

A) The Attitude Scale: 50 items in which five attitudinal clusters are surveyed -

- involvement in the career choice process
- orientation toward work
- independence in decision-making
- preference for career choice factors
- conceptions of the career choice process

B) Competence Test: 100 items (in five parts) measures the more cognitive variables involved in choosing an occupation.

1) Knowing Yourself (Self-Appraisal)
2) Knowing About Jobs (Occupational Information)
3) Choosing a Job (Goal Selection)
4) Looking Ahead (Planning)
5) What Should They Do? (Problem Solving)

The response format is a five part Likert-type scale

Career Maturity Profile - two types of scores are given:

1) raw scores
2) percentile rank

Norms

The Attitude Scale was not normed on a national sample because, ultimately, the most appropriate reference group for an individual is the one he most resembles demographically and educationally. Local grade norms are given for the Attitude Scale. However, if there is further interest in comparing a person/group with other norms, the appropriate reference groups tables are given in Appendix A of the manual. (The norms have been gathered from schools which have administered the Attitude Scale for various purposes.)

No attempt has been made to norm the Competence Test on a national scale because of the limited applicability of such a reference group to local situations. In lieu of local norms, percentile tables based on the item selection sample for the Competence Test have been included in Appendix B of the manual.

Attitude Scale

Reliability

a) Internal consistency: Item data from Grades 6 through 12 in the standardization sample were used to calculate internal consistency estimates (Kuder-Richardson Formula 20). Coefficients ranged from .72 - .84, with a mean of .74.

b) Stability: The r=.71 for 1,648 subjects in Grades 6 through 12 tested and retested over a one year interval.

c) Equivalence: Coefficients of equivalence have not been determined because no alternate forms of scale are available.

Validity

a) Content Validity. Evidence comes from two sources--one logical and the other empirical. From a pool of approximately 1,000 items, 100 were selected according to Flanagan's (1951) procedures for the initial standardization.

A study of the agreement between the empirical scoring key and a "rationally" derived one, was carried out by Hall in 1962. Of the 50 items the judges (5 male and 5 female psychologists) percentage of agreement was 74%.

b) Criterion-Related Validity. The Attitude Scale has been related to several so-called criterion variables in a number of different studies.

1) Bathory (1967) correlated it with the Occupational Aspiration Scale

9th graders (N=79) r's=.39 ($p < .01$)

12th graders (N=58) r's=.31 n.s.

2) Carek (1965) studied the relationship of decisiveness and career choice

N=346 male college students

biserial r of .25 between CM total score & being decided about career

Some preliminary data have been collected on the Attitude Scale in relation to the other measures of career maturity. For example,

- Cooter (1966) found an r of .38 ($p < .01$) between career attitude maturity - Gribbons & Lohnes RVP (Readiness for Vocational Planning)

c) Construct Validity. Data for the Attitude Scale appear to be those on 1) response bias; 2) correlations with other variables; and 3) experimental manipulations of counseling and didactic experiences.

With only a few exceptions, the evidence for the validity of the Attitude Scale is cross-sectional. Longitudinal data have been collected of Grades 5 through 12 between 1962-69, but they have not as yet been analyzed.

Further research is being carried out on the Attitude Scale.

Competence Test

Reliability

To determine the homogeneity of items in the subtests, Kuder-Richardson Formula 20 values were calculated for each grade level in the standardization sample (N^S ranged from 120 - 475). Most of the coefficients are acceptably high across grades. They range from .72 - .90. (Only two low coefficients are for the Problem Solving subtest in the 6th and 7th grades.)

Research on the Competence Test has not progressed nearly as far as that on the Attitude Scale, (Screening Form), but studies are being conducted and others are planned. The goal of future investigations is: 1) to gather longitudinal data on the subtests to determine whether they yield the same conclusions as were obtained from item selection findings; and 2) to establish further the psychometric characteristics (reliability and validity of the test).

Validity

Validation of the Competence Test has just begun.

a) Content Validity. Of the initial item pool of 30 per subtest, at least 20 for each part conformed to theoretical and empirical expectations.

b) Criterion-Related Validity. The percentages of overlap range from 33% - 56%, with the median being approximately 43%. All but three of the percentages are less than 50%.

c) Construct Validity. Product-moment correlations among the subtests were obtained. The r's range from .25 - .73, with a mean of .54.

Uses

The possible uses of the CMI are varied. They range from its construct validity as a measure of the model of career maturity to its application in assessing career education programs and career counseling.

The Attitude Scale has been recommended for:

- studying career development
- screening for career immaturity
- assessing guidance needs
- evaluating career education
- testing in career counseling

Competence Test should complement the Attitude Scale particularly in:

- studying career development
- assessing curricular & guidance needs
- evaluating career education
- testing in career counseling

The Self Observation Scales (SOS) Grades 7-12 - A. Jackson Stenner & W.G. Katzenmeyer (1975)

The Self Observation Scales (SOS) is a direct, self-report group administered instrument which measures dimensions of a child's self concept.

Forms A & B, at both the Junior (grades 7-9) and Senior High (10-12) levels, are comprised of 84 items and measure eight dimensions of a student's self concept.

1) Self Acceptance

2) Self Security

3) Social Confidence

4) Self Assertion

5) Family Affiliation

6) Peer Affiliation

7) Teacher Affiliation

8) School Affiliation

Forms C & D, at both levels, have 76 items and contain all of the above scales except for Family Affiliation.

Norms

The Junior High level was normed in January 1975 on 4,800 students and the Senior High on 4,900 students. The norms were computed using the probability sample based on criteria obtained from the Office of Civil Rights 1972 data on ethnic and socioeconomic characteristics of children from 42 school districts across the nation.

Reliability

Test-retest reliability estimates are based on one week retest-coefficients.

At the Junior High level (N=93) two scales have reliabilities in the middle .70's, five scales have reliabilities in the .80's, and one scale has a reliability in the low .90's.

At the Senior High level (N=163) two scales have reliabilities in the middle .70's, five scales have values in the high .80's, and one scale has a reliability of .90.

Overall, the one week retest reliabilities compare favorably with many achievement tests and are somewhat higher than other nationally normed measures in the affective domain.

Scale Intercorrelations

The patterns of intercorrelations among the scales at the Junior and Senior levels are quite similar.

For the Junior High level the correlations range from .01 for Social Confidence & Self Assertion, to .63 for School Affiliation & Teacher Affiliation.

For the Senior High level the correlations range from .05 for Self Security & School Affiliation, to .61 for School Affiliation & Teacher Affiliation.

Validity

There are two types of information that have impact on the validity of the Junior and Senior SOS: (1) structural integrity--the generic terms including four coefficients of replicability, invariance, constancy and stability; and (2) predictive validity.

To determine the replicability of the factors, four random subsamples (N=500) were drawn from each of the total Junior and Senior High validation samples. The factor analysis procedure applied gave coefficients of replicability above .95 for all factors.

To investigate the invariance of the factors across race and sex, four race-sex groups were identified (rather than by the random selection procedure)--black males, white males, black females and white females. Each of the Junior and Senior High levels scales are highly invariant across race and sex with coefficients above .90 in all cases.

Extrinsic Validity

Among the characteristics examined are achievement, psychomotor development, social behavior, and background characteristics.

From one-half to two-thirds of the variance in self concept (measured by the Junior and Senior levels of the SOS) is explained by the combination of independent variable domains.

Background domain variables: 40-50% variance in SOS scores among females

30-40% variance in SOS scores among males

Social & Gross domains: both are moderately correlated with SOS scores

Fine Motor & Stature domains: show only negligible association with the SOS

Self Concept & Achievement: There is a much stronger relationship at the Junior & Senior High levels (than that found at the Primary & Intermediate levels).

Suggested Uses

- The SOS might be used to assess needs in the affective domain. It can be group administered.

STS Youth Inventory - H.H. Remmers and Benjamin Shimberg (1971)

The STS Youth Inventory is a needs and problems checklist designed for use with boys and girls in Grades 9 through 12. Form G of the Youth Inventory consists of 167 statements arranged under five broad headings:

1) My School

2) After High School

3) About Myself

4) Getting Along With Others

5) Things in General

Norms

Form G was administered to a national sample of four-year high schools. Approximately 4,000 students in 12 states took Form G in the Spring of 1968. A stratified random sample was based on 2,400 cases. The stratification variables were region, rural or urban residence, and sex. The percentages were based on 1960 census data and statistics from the U.S. Office of Education.

Reliability

The split-half reliability coefficient, stepped-up by use of the Spearman-Brown formula, was used in studying the reliability of the Form G area scores. All 2,400 sample cases were included in these reliability studies. The area score reliabilities ranged from .86 to .96, with the median value of .93.

The five area scores yield significant intercorrelations ranging from .47 to .75 with a median value of .60 (36% common variance).

Validity

Since the Youth Inventory is a self-descriptive device intended primarily to yield information about the feelings and attitudes of students, content validity appears to be most appropriate to an evaluation of the instrument's usefulness.

Content validity rests on the following considerations:

1) The sample of items is as comprehensive and representative as practical considerations allow.

2) The students answer honestly.

3) The mode of response has been designed to help young people express their true feelings.

4) Patterns of response are used to detect response discrepancies and inconsistencies.

In view of the above considerations, the Youth Inventory purports to have a high degree of content validity for the usual school situation. However, it is extremely difficult to obtain empirical evidence that the responses given by students actually represent their true feelings.

Uses

- Written in simple, everyday language, the Youth Inventory can be used both as a survey instrument and as a counseling tool. Its main value rests in giving students an opportunity to express the personal importance of their interests and problems; with this, perspective teachers, counselors, and school administrators can help the student make the most of his school experiences.

- The primary purpose of the Youth Inventory is to enable teachers and others who work with young people to understand each student as a many-sided individual and to help him see the relationships among the concerns he expresses.

- Taking the Youth Inventory and discussing results in a group can help the student realize that other boys and girls his age are having similar problems and that his school and teachers are interested in his personal welfare.

- The success of the motivational devices and of the attempts to prevent misinterpretation on the part of the user will, in the final analysis, determine the operational validity of this instrument.

Employment Readiness Scale (ERS) - Anthony M. Alfano (1973)

The Employment Readiness Scale (ERS) was designed to measure attitude toward employment. It is a 43 item questionnaire in which respondents rate their feelings about the statements.

Norms

Four hundred and thirty subjects were involved in the standardization and administration of the ERS. These were from three independent groups: (1) employed workers and employees who worked in unskilled, semi-skilled, and ocassionally skilled job classifications; (2) unemployed individuals who were actively looking for regular employment at the Tennessee State Employment Service; and (3) the chronically unemployed.

Reliability

The reliability of the original 45 item questionnaire, computed by the odd-even method and the Spearman-Brown formula, was .87.

Validity

In order to rest the degree of difference in the groups used, an F-test was computed and was found to be significant at the .0033 level.

Note

There is no manual available for the ERS.

Thurstone Test of Mental Alertness (TMA) - L.L. Thurstone & T.G. Thurstone (1968)

The Thurstone Test of Mental Alertness (TMA) is a test of general mental ability. It is designed to measure the capacity of an individual to acquire new knowledge and skills and to use these in problem solving.

The TMA is largely self-administering. The test contains 126 items of four general types:

1) Arithmetic Reasoning: Solving word-arithmetic problems. (Q score)

2) Number Series: Determining what number comes next in a series that has a definite order. (Q score)

3) Same-Opposite: Finding the word that has either the same or the opposite meaning as a given word. (L score)

4) Definition: Reading a definition and marking the first letter of the word that fits the definition. (L score)

The items are arranged in order of increasing difficulty in the following sequences:

- Two verbal items
- One quantitative item
- Two verbal items
- Two quantitative items

The TMA is published in two equivalent forms, Form A & Form B. Two forms of the test permit the retesting of an individual without the effect of item recall on the second score.

Norms

Norm tables are presented for 15 categories of employees and for high school grades 9 through 12, groups that are thought to be a cross-section of most TMA takers.

The published high school norms are those from 1,522 students across the country (977 9th graders & 545 12th graders). These should be used as general guidelines until local norms can be accumulated.

Reliability

Pearson product-moment correlations are based on the 1962 study administered to 202 12th graders in two high schools. The students were given both forms of the TMA 30 days apart. The coefficients of correlation range from .81 - .86.

Test-retest reliability

Test-retest reliability studies were conducted to determine the stability of scores of each form. Two schools were used.

In the first sample, 140 12th graders took the test-retest of Form A at an interval of 30 days. Test-retest correlations ranged from .93 - .95.

In the other sample, 150 12th graders took the test-retest of Form B after a month's interval. Test-retest correlations ranged from .92 - .95.

Validity

Educational Studies: Validity studies have been carried out to compare TMA with other measures of educational ability and ot classroom achievement, and to demonstrate the efficiency of the TMA as a predictor of scholastic success.

Correlation with Student Grades: The first study was based on 659 9th grade students in 3 different sections of the United States. The TMA total score and the grade-point criterion correlations ranged from .57 - .60.

The second study was based on 545 12th grade students in the same three schools and a fourth. The correlations ranged from .40 - .61.

The median validity in these seven studies was .64.

Correlations with measures of educational ability:

1) Correlation of TMA scores with ITED composite score.	977	9th grade students	.83
	545	12th grade students	.85
2) Correlations of TMA total score and SRA-HSPT score	90	9th grade students	.73
	102	High school students	.71
3) Correlation of TMA with the verbal subtest of WAIS	200	industrial sample of supervisors & managers, staff & sales people .18 - .62	

Industrial Validity

TMA scores were compared with a criterion of effectiveness of work performance. The general procedure followed was first to have a group of employees rated by their immediate supervisors, then administer the TMA to the group, and finally determine the extent to which the TMA discriminated between the good and poor raters as rated by their supervisors.

Note

The TMA is designed for use with only those persons who are familiar with the English language and who have had at least average educational opportunities.

The Wonderlic Personnel Test - E.F. Wonderlic (1977)

The Wonderlic Personnel Tests were designed and created for testing adults in business and industrial situations.

There are 14 comparable and similar forms in current use. All have been fully standardized. All forms are used to measure an individual's "ability to learn," regardless of job position or educational level.

It is practically self-administered. There are 50 items on each form. The test items include:

- Analogies
- Analysis of Geometric Figures
- Arithmetic Problems
- Disarranged Sentences
- Sentence Parallelism with Proverbs
- Similarities
- Logic
- Definitions
- Judgement
- Direction Following Using Clerical Items
- Spatial Relation Items

Norms

The Personnel Test and each of the 14 current forms have been standardized in business situations on adults, ranging in age from 16-65. The full range of work backgrounds and situations have been included in the many normative populations used.

Comparative Norms for large groups of adults applying for jobs are shown in the tables at the end of the Manual. Three studies including 36,864 applicants in 1950; 53,864 applicants in 1960; and a third separate sample of 251,253 applicants in 1970 illustrate the consistency of results over time using diverse populations.

Reliability

The reliability of this test is as good as that of larger tests. Comparing the results of one 12-minute test taken immediately after another gave correlations of .82 - .94, indicating good reliability.

Comparison of the number of odd items against even numbered items resulted in a high correlation and similarly indicated good reliability with r=.88 - .94. These are particularly significant for the relatively homogeneous groups used. The probable errors of scores are only about 1.3 - 1.6 points.

The reliability coefficient between the various forms of the test range from .87 - .99, indicating that the curves and dispersions of the various forms are similar.

Validity

The Wonderlic Personnel Test has been proven valid in more than 150 separate, independent research studies published by others.

The mean difference between success and failure groups has been found consistently in independent research.

Average test scores increase with the mental ability level required in various positions. Applicants apply for jobs consistent with their ability to learn.

Validity coefficients between mean and median test scores and years of education range from .95 - .99.

Uses

- Availability of equivalent forms makes it possible to decrease the range of error, where this is necessary, by administering two 12-minute tests. This is particularly helpful in examining border-line cases.
- It is not intended that this test should be used by those who are not familiar with psychological procedures and techniques in mental testing.
- The examination is not valuable unless it is carefully used, and norms are established for each situation in which it is to be applied.

Work Values Inventory (WVI) Grades 7-12, college, adult - Donald E. Super (1970)

The Work Values Inventory (WVI) was developed to meet the needs for a means of assessing the goals which motivate man to work. It is designed to measure the values which are extrinsic to as well as those which are intrinsic in work, the satisfactions which men and women seek in work and the satisfactions which may be concomitants or outcomes of work.

It is a 45 item self-report inventory responded to by rating each item on a 5-point scale. There are 15 scales (values):

- Altruism
- Esthetic
- Creativity
- Intellectual Stimulation
- Achievement
- Independence
- Prestige
- Management
- Economic Returns
- Security
- Surroundings
- Supervisory Relations
- Associates
- Way of Life
- Variety

Norms

The WVI was standardized by administering it in the Spring of 1968 to a national sample of 10,383 students in Grades 7-12.

The sampling procedure developed by Dr. John T. Dailey for the Project Talent survey was utilized to draw the sample for WVI standardization--community type, size, and geographic region. Junior and senior high schools from 26 systems in 20 states participated.

Reliability

The content of the 15 present scales was designed to deal with the same 15 values as the scales used on earlier research forms. The correlations are based on a combined group of 51 boys and 48 girls in the 10th grade. The smallest correlation was .43 and a median correlation of .65 was observed.

Test-retest reliability

Test-retest reliability was based on a sample of 99 10th grade students in a suburb of Albany, New York, over a two week period.

The range is from .72 - .88, and the median .83.

Intercorrelations

Intercorrelations of WVI scales are based on Grades 7-12.

For 12th grade boys (N=672) the range of intercorrelation is .07 for Creativity and Economic Returns to .66 for Economic Returns & Security.

For 12th grade girls (N=724) the range of intercorrelation is from -.17 for Esthetics and Economic Returns to .58 for Economic Returns & Security.

The highest correlation for 7th grade boys (N=928) was .45 for Economic Returns & Security, and .475 for 7th grade girls (N=902).

Validity

1) Construct Validity: The WVI has been studied in relation with the Allport-Vernon-Lindzey Study of Values as a direct measure of values, and to the Strong Vocational Interest Blank & the Kuder Preference Record (Vocational) as indirect measures of values. Values are reported for each construct on each of the measures. They range from .08 to .67.

2) Content Validity: The case for the content validity of WVI rests on the phrasing of items on the basis of a study of the literature on values and on the revamping of the items in the light of their comprehension by teenagers and young adults. Two tables report the relative independence of the scales; three tables summarize the factor analyses.

3) Predictive Validity: Data on the occupational predictive validity of the WVI are now being collected.

Uses

- The WVI is designed primarily for use in counseling in schools, colleges and community agencies. The value profile, using both raw scores and percentiles for appropriate groups, can be shown to the student or client.

Highs and lows, within the individual and in comparison with other groups, provide a stimulating basis for exploring what it is the counselee seeks in work, in education, and in life in general.

- The transparency of the items in the WVI raises a very real question concerning its validity in a selection or promotion program.

Edwards Personal Preference Schedule (EPPS) - Allen L. Edwards (Revised 1959)

The EPPS was designed primarily as an instrument for research and counseling purposes, to provide quick and convenient measures of a number of relatively independent normal personality variables. The EPPS was developed as a means of assessing the strength of 15 needs selected from Murray's list of manifest needs, V12-- Achievement (ach), Deverence (def), Order (ord), Exhibition (exh), Autonomy (aut), Affiliation (aff), Intraception (int), Succorance (suc), Dominance (dom), Abasement (aba), Nurturance (nur), Change (chg), Endurance (end), Heterosexuality (het), and Aggression (agg).

In addition to the above 15 personality variables, the EPPS provides a measure of test consistency and a measure of profile stability.

It is a forced-choice inventory of 225 items. In the EPPS an attempt is made to minimize the influence of social desirability in response to the statements.

Norms

Normative data has been developed for two groups of subjects: college students and adults who were household heads in the United States.

College Sample: This group is composed of high school graduates with some college training. The sample consists of 749 college women and 760 college men. The students were enrolled in day or evening liberal arts classes at various universities and colleges; they were obtained as subjects through the cooperation of the psychologists who were asked to obtain a specified number of students approximately equally divided into the sexes and with as wide an age spread as possible (from 15-59).

General Adult Sample: The EPPS was completed by 4,031 males and 4,932 females from the consumer panel consisting of 5,105 households. The nationwide sample covers urban and rural areas of 1,181 counties in the 48 states (as of 1957).

Reliability

Split-half reliability coefficients or coefficients of internal consistency were determined for the 15 personality variables. These coefficients were obtained by correlating the row and column scores for each variable over the 1,509 subjects in the college normative group. The internal consistency coefficients are corrected by the Spearman-Brown formula. They ranged from .60 for Deference to .87 for Heterosexuality.

Test-retest reliability coefficients or stability coefficients are based on 89 students at the University of Washington who took the EPPS twice with a one week interval separating the two administrations. Coefficients ranged from .74 - .88.

Intercorrelations of the variables are, in general, quite low. They range from .46 between Affiliation and Nurturance to -.36 between Autonomy and Nurturance. The low values of the intercorrelations indicate that the variables being measured by the EPPS are relatively independent.

Percentiles & Standard Scores

The raw score distributions for both men and women were fairly symmetrical about their respective means on each of the 15 personality variables. The score distributions for both men and women, however, were highly skewed on the consistency variable.

The raw score distributions for men and women on each variable were also converted into standard score distributions (T-scores) with a mean of 50 and a standard deviation of 10.

No attempt is made to define precisely just what constitutes a high or low percentile or T-score on any of the personality variables. This is something that each user of the EPPS can determine best for the particular group under observation and in terms of his own objectives.

The Consistency Variable

Scores on the consistency variable are based on the comparison of the number of identical choices made in two sets of the same 15 items. For the two complete sets of 15 items, the expected number of identical choices, i.e., the consistency score, on the basis of chance, is 7.5.

The probability of ten or more identical choices occuring by chance is approximately .15. If a subject obtains a low consistency score, say less than nine, his scores on the 15 personality variables may be questioned. In the normative sample of 1,509 college subjects only approximately 2% of the subjects obtained scores this low or lower.

Validity

No values were reported for self-rankings compared with corresponding scores on the EPPS. Scores are reported for the correlation between the EPPS variables and the Taylor Manifest Anxiety Scale (range from .00 - .22) and the Guilford-Martin Personnel Inventory (range from .00 - .51).

Profile Stability

The measure of profile stability may be obtained by correlating the partial scores in each row (r) or column (c) on the answer sheet over the 15 personality variables for a single subject. The average distribution of profile correlations of .74 (based upon the two transformations) is obtained from a random sample of 299 cases drawn from the college narrative group of 1,509 records.

Uses

- Counseling and Guidance: The EPPS can add a good deal to the vocational and educational counseling of college students. In practice, it has been found useful to discuss the present relative strengths of the variables, first in relation to the counselee by using a rank ordering of the raw scores, and then percentile scores in relation to sex.

  It is suggested that during the discussion of the scores, the counselor can take time to note the actual items contributing to the scores.

- Selection Problems: Research has not yet demonstrated the possible value of the EPPS in selection problems.

WLW Personal Attitude Inventory - R.W. Henderson (1969)

The WLW Personal Attitude Inventory is a self-administered self-report test. It gives what a person thinks of himself or wants to have others think how he sees himself.

There are two editions--3rd and 5th editions (6th edition is reserved for exclusive use of the publishers). There are 64 items. The forced choice format requires the respondent to pick two of six (3rd edition) or one of three choices (5th edition).

The six scales are:

1) Emotional Stability

2) Friendliness

3) Aggressiveness

4) Humility and Insight

5) Reliability

6) Supervisory Style - 3rd and 5th editions: Considerate and democratic leadership.

Norms

The manual provides norms based on 1,884 cases of predominantly male middle management in 1968 in the 5th edition. The 6th edition percentiles are based on 138 cases, male middle management in 1969.

Reliability

Split-half reliability coefficients were determined for a middle management sampling of 100. (edition not specified)

Split-half scale reliabilities range from .73 - .89.

Item-Total Scale Correlations

Edition 3 items and most of the items in editions 5 and 6 were the result of item analysis wherein items were correlated with total scales. Retained item correlations ranged from .30 - .93 with a majority of them over .65.

Note

There is no discussion of the original bases for choosing items. Nowhere in the 14-page manual is the issue of validity approached. The authors offer no empirical evidence that the test is valid according to any definition of validity. Only three cases are presented to illustrate a few points of interpretation.

Trait Evaluation Index (TEI) - Alan R. Nelson (1968)

The TEI was designed to elicit comprehensive, multi-dimensional appraisals of "normal" personality dimensions without relying on private, personal or negative items. The index consists of 125 triads of positive sounding adjectives and hyphenated adjectives descriptive of personality. These triads were developed on a rational statistical basis. The index provides measures of 22 personality variables plus seven supplementary scales which are grouped into five clusters. (These common clusters were determined through intercorrelations of the basic set of trait names administered under forced-choice conditions.)

Group 1 social orientation (son), compliance (cmp), benevolence (ben), elation (ela)

Group 2 ambition (amb), motivational drive (mdv), self-confidence (scd), dynamism (dyn), independence (ind), personal adequacy (pad)

Group 3 caution (cau), self-organization (sor), responsibility (rsp), propriety (prp), courtesy (crt)

Group 4 verbal orientation (var), intellectual orientation (ior), perception (per)

Group 5 self control (scn), fair mindedness (fms), adaptability (adp)

Group 6 sincerity (sin)

Supplementary Scales Consistency, Masculine Orientation, Feminine Orientation, Over-all Adjustment, Employment Stability, Productivity/Creativity, Job Satisfaction

Norms

Percentile norms are offered for males in Business and Industry (no N given, but may be 107), engineers (N=1,081), college males (N=120) and college females (N=180), the latter two restricted to New York City. The only adequate norming with regard to size and representativeness is that for engineers.

Reliability

The consistency and stability of measurement were assessed with both an academic group as well as a business-industrial population. Test-retest reliability estimates for the college group involved 96 students (2nd administration 6-9 weeks) and the industrial-business population involved 51 (2nd administration varied between one week and one month).

Split-half reliabilities obtained for the college group of 62 students ranged from .70 - .91. Odd-even reliabilities for the industrial-business population of 93 ranged from .72 - .92. These have been estimated with the Spearman-Brown prophecy formula.

Validity

The validity of the instrument has been evaluated by two separate procedures. In the first procedure TEI was administered to 87 college students attending various schools in the New York Metropolitan area. One week to two months later they were asked to rate themselves using a 5-point scale, on each of the 22 best variables. The correlations between self ratings and actual scores were reasonably high, ranging between .52 and .59, with one exception; adaptability scored .31.

To a considerable extent (limited only by requirement to have a mean rating of three) the subject has provided us with what he wishes to present. The relationship between what the subject sought to give in two instances, represent something of reliability coefficients. Another interpretation possible here would suggest content validity.

In the second procedure, 49 college students took both the TEI and the Gordon Survey of Interpersonal Values (SIV). The following Correlations between the 22 TEI and the six SIV scales are given:

Leadership scale correlates - .51

2 Independence scales correlates - .46

The SIV Leadership score & TEI Ambition score correlates - .44

The SIV Independence score & TEI Social Orientation score correlates - .43

Being relatively homogeneous groups, these r's are probably minimal estimates.

Item validity was also calculated by measuring the relationship of each item to the scale in which it has been keyed. The population here consists of 50 college students and the scores are all significant at the .05 level or higher.

Uses

- This instrument has been published for research and counseling purposes at a point where it was felt that sufficient data were available to indicate some distinctive merit in the individual and group application of the instrument.
- Users are cautioned against prior assumptions of the overall application of this index or the significance for job success of any one or more variables the TEI attempts to measure.
- At its present stage of development this index is a research instrument of potential value in counseling.

Flanagan Industrial Tests (FIT) - John C. Flanagan (1975)

The Flanagan Industrial Tests (FIT) are 18 short tests designed specifically for use with adults in personnel selection programs from a wide variety of jobs. The tests are short, self-administering and require from 5-15 minutes working time.

There are 18 job elements covered by the present FIT battery:

1) Arithmetic (Ar): ability to work quickly and accurately with numbers

2) Assembly (As): ability to visualize the appearance of an object assembled from a number of separate parts--a skill related to visualizing the results of structural and mechanical changes.

3) Components (Com): ability to locate and identify important parts of a whole, which involves an ability to change visual patterns, especially in shifting from a comprehensive pattern to a detailed pattern.

4) Coordination (Co): ability to coordinate hand and arm movements smoothly and accurately.

5) Electronics (el): ability to understand electrical and electronic principles and to analyze diagrams of electrical circuits.

6) Expression (Ex): Feeling for and knowledge of correct English: ability to convey ideas in writing and talking.

7) Ingenuity (Ing): creative or inventive skill; ability to devise ingenious procedures, equipment, or presentations.

8) Inspection (Ins): ability to spot flaws or imperfections in a series of articles quickly and accurately.

9) Judgement and Comprehension (J-C): ability to read with understanding, to reason logically, and to use good judgement in interpreting materials.

10) Mathematics and Reasoning (M-R): ability to understand basic mathematical concepts and to translate ideas and operations into brief mathematical notations.

11) Mechanics (Me): ability to understand mechanical principles and to analyze mechanical movements.

12) Memory (Mem): ability to learn and recall a term associated with an unfamiliar one.

13) Patterns (Pat): ability to perceive and reproduce simple pattern outlines precisely and accurately.

14) Planning (Pl): ability to plan, organize, and schedule; ability to foresee problems that may arise and to anticipate the best order for carrying out various steps.

15) Precision (Pre): ability to do precision work with small objects; speed and accuracy in making appropriate finger movements.

16) Scales (Sc): ability to read scales, graphs, and charts quickly and accurately.

17) Tables (Ta): ability to read tables quickly and accurately.

18) Vocabulary (Vo): ability to choose the right word to convey an idea; knowledge; knowledge of words used in business and government matters.

Norms

Norm tables presented in the appendix of the manual, give percentiles and stanines for industrial and business personnel, 12th grade students (N=3359), and entering first year college students (N=701).

Reliability

The intercorrelations of all the tests in the FIT battery were determined by testing the entering class of a selective private men's university (N=701 male college students).

The matrix of correlations was inverted to obtain the multiple correlations of each of the 18 tests with the combination of the other 17 tests.

Multiple Correlation of Each Test in the FIT Battery with the 17 Other Tests in the Battery

Test	Multiple Correlation
Arithmetic	.53
Assembly	.48
Components	.46
Coordination	.43
Electronics	.67
Expression	.45
Ingenuity	.57
Inspection	.39
Judgement and Comprehension	.52

Mathematics and Reasoning	.56
Mechanics	.68
Memory	.30
Patterns	.55
Planning	.52
Precision	.42
Scales	.62
Tables	.61
Vocabulary	.61

The manual states that "Since short tests of the FIT type inevitably are at least slightly speeded, it is inappropriate to compute the usual types of Spearman-Brown and Kuder-Richardson estimates of reliability coefficients. Until coefficients based on alternate forms become available, evidence suggests that the reliability coefficients are somewhere between .50 and .90 for the individual tests."

Validity

Industrial Validation Studies:

In 1969 SRA began a project to promote test validation studies in industry. Most of the validities cited in the Manual are adaptations of these reports (1972).

The criterion recommended for these studies was a performance ranking of each of the employees in a particular job category by the immediate supervisor. Those who ranked in the top or bottom 25% were given a number of tests. For each job the results from several companies were pooled and point biserial correlation coefficients were computed between the scores on the tests administered to the group and the criterion.

The studies that follow in the Manual are listed in alphabetical order by job title. Charts included with the studies report the correlation coefficients, means, and standard deviations of the FIT test scores for the groups.

Intercorrelation data from the Industrial Validation Studies: Some estimates of the intercorrelations of the FIT Battery tests based on employee groups used in validation studies are:

.61 between Assembly and Components

.57 between Assembly and Ingenuity

.62 between Assembly and Scales

.10 between Coordination and Memory

Uses

- Because the FIT tests tend to be short, it is desirable that they are used in combination.
- Each company needs to determine its own standards for personnel selection.

The Job Analysis & Interest Measurement (JAIM) - Regis H. Walter (1972)

The Job Analysis & Interest Measurement (JAIM) is a self-description inventory of 154 questions, mostly using a forced-choice format. The JAIM reflects an individual's self-reporting beliefs, behavioral styles, work preferences and values. No psychometric data were given with the abstract.

Items were grouped into JAIM scales on:

1) Basic Beliefs: Optimism, self-confidence, interpersonal trust, conservative-conventional.

2) Activity Preferences: Job challenge, social interaction, mechanical activities, activity-frequent change.

3) Personal Values: Status attainment, social service, approval of others, intellectual achievement, dependability.

4) Self-Management Styles: Plan ahead, orderliness, perseverance, emotional control, schedule activities.

5) Relationship to Authority: Act independently, work as supervisor, work as assistant, work with group, work alone.

6) Reaction to Agression: Move toward aggressor, move away from aggression, move against aggression.

7) Leadership Style: Directive leadership, external controls, motivate by rewards, motivate by results.

8) Information-Processing Style: Systematic-methodical, concrete-practical open system.

9) Interpersonal Style: Self-assertive, supportive of others, take leadership.

There is some empirical evidence for all the scales, although some of them are still in an early developmental stage.

Norms

No norm group data were available.

Reliability

Test-retest procedures, with the two administered four days apart, the average reliability of all the scales used in this inventory is estimated to be in the low .70's. (No further details are provided.)

Validity

Results from a number of studies have shown that the JAIM Scales can be used effectively to differentiate among occupational groups. Data was gathered on over 50 occupations and professional groups, however no figures are given.

Uses

The best uses for this test seem to be in the following research areas:

- Investigating the psychological requirements and satisfaction potentials of particular jobs or roles.
- Analyzing personal decisions.
- Evaluating change resulting from educational and training experiences.
- Studying occupational personalities.
- Studying organizational abilities.

The FIRO Scales - William C. Schulz (1967)

The FIRO Scales are a series of measuring instruments derived from the theory originally presented in FIRO: A Three-Dimensional Theory of Interpersonal Behavior. There are six self-administered scales:

1) FIRO-B: (Fundamental Interpersonal Relations Orientation-Behavior) A measure of a person's characteristic behavior toward other people and to assess relationships between people.

2) FIRO-F: (Fundamental Interpersonal Relations Orientation-Feelings) A measure of a person's characteristic feelings towards others. It is designed to measure interaction as well as individual traits. (no data on reliability)

3) LIPHE (Life Interpersonal History Enquiry) A measure of the retrospective account of the respondent's relationships with his parents before he was six years old. There are separate scales for the respondent's relation with his father and with his mother, and for his perception of the relationship between his father and mother. (no data on reliability; no norms)

4) MATE (Marital Attitudes Evaluation) This test follows the same format as LIPHE but is focused on the husband-wife relationship, rather than on parent-child relationship. (no data on reliability and validity; no norms)

5) VAL-ED (Educational Values) A measure of values regarding the "shoulds" of relationships in the school setting among child, teacher, administrator, and community. In addition, two scales not based on the FIRO theory have been added. These relate to (a) the social importance of education; and (b) the purpose of the school--whether it is to develop the child's whole personality or just his mind. (no data on reliability; no norms)

6) COPE (Coping Operations Preference Enquiry) A measure of the respondent's preference for certain types of defense as coping mechanisms. (no data on reliability and validity)

Scaling Procedures

All scales, with the exception of COPE, were developed in the same way. Of the several available techniques for psychological scale construction, the one that appeared most appropriate was the Guttman technique for cumulative scale analysis. For specific content areas the Guttman method is more efficient and relevant than other methods, such as factor analysis, which is used for isolating variables.

Norms

The results of all the studies to date indicate the inability of making general norms for the FIRO-B. The author states that "The occupational variations are so great that a general norm is a little value."

Reliability

Coefficient of Internal Consistency: Since the scales of FIRO-B are all Guttman scales, reproducibility is the appropriate measure of internal consistency (90% predictable). The FIRO-B scales were developed on 1,543 subjects, mostly college students, plus a small population of Air Force personnel. The mean coefficient is .94.

Coefficient of Stability: Test-retest reliability coefficients were based on 674 Harvard students over a 1-month period (except for two scales which were based on an interlude of 1 week). The mean coefficient of the six scales is .76.

Intercorrelation of Scales: Intercorrelation between FIRO-B scales were obtained from a sample of 1,340 subjects. Correlations range from .06 - .49. The manual states that it is important to be aware of the fact that FIRO-B contains non-independent scales. But at this point the authors seem to think it would be advantageous to retain all the scales.

Validity (FIRO-B)

Content Validity: If the theory underlying the use of Guttman scales is accepted, then content validity is a property of all legitimate cumulative scales, and therefore of all FIRO-B scales. (90% reproducible and predictable)

Concurrent Validity: Since the original publication of the test in 1958, research on FIRO has taken place in a wide variety of fields.

These studies represent the present state of concurrent, construct, and predictive validity. In addition to these studies, much information has been obtained on various occupational groups with the FIRO-B. The differences among occupational groups are very striking and, for the most part, consistent with occupational stereotypes.

The results of all these studies to date indicate the inability of making general norms for the FIRO-B. The occupational variations are so great that a general norm is of little value.

Uses

- Of the six self-report questionnaires, only FIRO-B has been studied enough to be recommended for use in systematic research on the subject of interpersonal needs. The manual points out correctly that the other five questionnaires should be regarded as experimental.

- While the scales have been used primarily with college students and adults, they could be administered to high school students as well. The authors have administered the FIRO-B to subjects as young as the 8th grade level.

The Hall Occupational Orientation Inventory (HOOI) - Lacy G. Hall & Randolph B. Parrier (Young adult 1971 edition, Adult Basic 1976 edition)

The Hall Occupational Inventory (HOOI) is a new approach to occupational testing which takes into account today's ever-changing job market. The HOOI emphasizes the many possibilities for the student's future and encourages the broadening of the student's perceptions of potentials and priorities.

The inventory is based on a personality-need theory inspired by Abraham Moslow and adapted by Anne Roe to the area of occupational choice. These psychological needs are correlated to worker traits and job characteristics identified by the U.S. Department of Labor.

The HOOI is designed to be entirely self-administered and self-scored. There are 110 items (using the 5 point interactive response). There are 5 items per scale for the 22 scale concepts on job & personality characteristics.

Creativity · Independence · Risk · Information

Knowledge · Belongingness · Security · Aspiration

Esteem · Self-Actualization · Personal Satisfaction

Routine · Dependence · Data Orientation · Aptitude

Things Orientation · People Orientation · Location Concern

Physical Abilities Concern · Monetary Concern · Concern

Environment Concern · Co-Worker Concern · Time Concern

Qualifications Concern · Defensiveness

The Interpretive Folder guides the student in understanding his/her response patterns.

Norms

No norm groups are reported in the manual.

Reliability

The Inventory provides static self-portraits of personality variables that are actually in movement, and no one knows the rate of change or movement involved.

Reliability coefficients for the 22 HOOI scales were based on N=425. For the Young Adults Form these ranged from .74 - .93. In the Adult Basic Form these ranged from .70 - .84.

Validity

The validity of HOOI is judged in terms of the categories which follow:

1) Responsiveness: 2,200 individuals from a wide variety of age, educational and geographical levels averaged marking 25% of the HOOI items as either most desirable or very undesirable; another 35% as either desirable or undesirable.

2) Comprehensiveness. The comprehensiveness of the HOOI was tested by 225 college students who, after responding to the HOOI were asked to list additional statements under each of the 22 scales. Only 8% of these students listed additional statements.

3) Acceptance: Out of 2,200 individuals from a wide variety of age, educational and geographical levels, 89% indicated that the items and interpretations had stimulated them to think more about the relationship of their needs and values in choosing an occupation. They also rated the Inventory as an acceptable medium for communicating their needs and values to a counselor.

4) Relevancy: A sample of college seniors were given the HOOI followed by three hours of group counseling sessions. After graduation and one year of full-time employment, these students were asked to rate their work in terms of satisfaction.

   The findings suggest that work satisfaction is more influenced by the presence or absence of very undesirable factors than the presence of most desirable factors. The Counselor's Manual states that this will be further examined in future research.

5) Developmental Potency: Using the mean scores from pre- and post-self-rating questionnaires that described the individual's level of self-awareness in terms of 46 categories, it was found that a group of college freshmen (N=60) who had undergone group explorational counseling with HOOI demonstrated a greater increase in awareness levels than did college freshmen who had undergone group predictive counseling sessions with the SVIB.

   Using Osgood's semantic differential to measure the mean change in attitude, it was found that high school counselees who had undergone individual counseling tended toward greater attitude change than those with the Kuder Occupational Interest Survey.

6) Occupational Differences: The mean scale scores for 13 occupational groups were compared with the mean scale scores achieved by a sample of 200 nongrouped adult workers. The difference between these scale scores was tested for statistical significance ("t" test).

   The differentation was at the .01 level of statisitcal significance or higher for 8 or more of the 22 scales.

Uses

Group Counseling:

(I) Basic use:

A. The movement toward self-empowerment

B. Session-by-session descriptions

(II) Other uses:

A. Schools

1. Elementary schools
2. Middle schools
3. Secondary schools
4. Technical schools
5. Community colleges
6. Colleges and universities
7. Adult basic education
8. Other educational uses

a. test and measurement courses
b. textbook for occupations or careers class
c. self-report essays
d. with predictive occupational inventories

B. Organizational Development - Institutions, Industry, and the Military

C. In-Service Training for Professionals - Educators and Peer Helpers

D. Special Groups

1. Women
2. Senior citizens--retirees
3. Veterans
4. Prisoners
5. Clergy
6. Individual Counseling
7. Value clarification

(III) Activities: The use of Simulation to complement the HOOI items & scale

A. The Orientation Scales (11-13)

1. The time log
2. The clock riddle
3. The number sequence riddle

B. The Concerns Scales (14-21)

1. Development of moral judgement
2. Choose a vacation fantasy
3. Cover the corn

C. The Needs Scales (1-10)

1. Off-the-table
2. Family chart-genealogy of careers
3. Drama workshop
4. Ten success stories

The HALL Career Education Reader: Basically a supplement to the Interpretive Folder. It provides expanded clarifying information about each scale. It details DOT occupations which utilize many of the HALL scales according to relative education/training requirements.

Adaptability Test - Joseph Tiffin & C.H. Lawshe (1967)

The adaptability Test is designed to measure mental adaptability or mental alertness. The test is used primarily as an employment aid to distinguish between those persons who should be placed in jobs that require more learning ability and those who do not readily adapt to new situations but who might be satisfactory (or even superior) employees on simple routine jobs.

There are two forms, A and B. Thirty-five items each were allocated to Forms A & B by matching both on the basis of item difficulty and D-value (a discrimination value is a number reflecting the power of an item to discriminate between two groups of persons). In each form, items were arranged in increasing order of difficulty. The items in each form have an average D-value of 1.0.

Norms

For the Adaptability Test, 1966 and 1970 norms include 1,550 skilled and semi-skilled workers, 7,198 general office workers, 2,431 office machine and data processing workers, and 2,160 secretaries and stenographers. Also included in the 1966 norms are 1,321 trade and professional workers, 159 students, and 934 managers.

Reliability

Reliability estimates have been made by the alternate forms and split-half methods.

For all groups combined (N=942)--female applicants, navy trainees, clerical workers, Purdue seniors--each method yielded a correlation of .89.

Correlation coefficients were found by the split-half method (odd versus even) corrected by means of the Spearman-Brown formula. The correlations for various groups on the two forms range from .60 - .90; for all groups, the correlations are .90 for Form A and .88 for Form B.

Validity

Correlations with Other Measures:

The Adaptability Test was correlated with other recognized measures. The Adaptability Test correlated substantially with measures of general ability:

Ohio State University Psychological Examination	.78
Ohio Test of Mental Ability	.70 - .88
Wonderlic Personnel Test	.79
Navy General Classification Test	.60

As expected, this test has lower correlations ranging from .18 - .49 with measures of more specific aptitudes.

Predictive Validity:

The Manual mentions that Predictive Validity is situational in nature and strongly recommends that the validity of the test be established for its intended purpose by each organization that uses it.

However, it includes validity studies as guidelines. These are based on clerical employees (N=86), general foremen (N=38), first-line supervisors (N=70), pharmaceutical company finishers (N=49), industrial supervisors (N=176) and teletype employees (N=219).

These preceding studies illustrate that the Adaptability Test may be a valuable instrument for predicting success in a wide variety of business and industrial situations.

Note

- This test has been designed for use with a broad range of persons, from those who are limited in adaptability to those possessing a high degree. There are persons, however, for whom the test--which consists mainly of verbal items--is not appropriate.
- The test is neither sufficiently long nor difficult to be used to discriminate among very high-level people such as top executives.
- It is suggested that those who use this test determine for themselves the appropriate score levels for different types of jobs on the basis of cumulative experience with the test.
- The SRA Adaptability Test has been included in some research studies in recent years. The research findings presented are mainly for informational purposes, although some companies might find them operationally useful.

Index of Publishing Firms

Career Planning Program (Grades 8-11) (1976)

The American College Testing Program
Houghton Mifflin Company
110 Tremont Street
Boston, MA 02107

The Assessment of Career Development (Grades 8-11) (1974)

The American College Testing Program
Houghton Mifflin Company
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1) Orientation to Career Concept
11) Career Knowledge
111) Student Attitude Survey

Evaluative Research Associates
5431 Trailbend
St. Louis, MO 63033

Career Skills Assessment Program (Experimental Edition, 1977)

College Entrance Examination Board
Box 592
Princeton, NJ 08540

Career Decision Program (1977)

McKnight Publishing Company
Appalachia Educational Laboratory
Bloomington, IL 61701

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American Institutes for Research
McGraw-Hill
Del Monte Park
Monterey, CA 93940

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Scholastic Testing Service, Inc.
Bensenville, IL 60106

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Kenneth E. Clark and David P. Campbell
Psychological Corporation
304 East 45 Street
New York, NY 10017

The Pier-Harris Children's Self Concept Scale (The Way I Feel About Myself) (1969)

Ellen Piers and Dale Harris
Counselor Recordings and Tests
Box 6184 Acklen Station
Nashville, TN 37212

World of Work Inventory (WOWI) (Revised 1975)

Robert E. Ripley, Ph.D.
World of Work Corporation, Inc.
P.O. Box 27532
Tempe, AZ 85283

New Mexico Career Education Test Series (Grades 9-12) (1973)

Charles C. Healy and Stephen P. Klein
Monitor
P.O. Box 2337
Hollywood, CA 90028

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John O. Crites
CTB/McGraw-Hill
Del Monte Research Park
Montery, CA 93940

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A. Jackson Stenner and W.G. Katzenmeyer
National Testing Service
2526 Erwin Road
Durham, NC 27705

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H.H. Remmers and Benjamin Shimberg
Scholastic Testing Service
480 Meyer Road
Bensenville, IL 60106

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Anthony M. Alfano
Department of Counseling and Human Development
University of Georgia
Athens, GA 30602

Thurstone Test of Mental Alertness (TMA) (1968)

L. L. Thurstone and T. G. Thurstone
Science Research Associates, Inc.
259 East Erie Street
Chicago, IL 60611

The Wonderlic Personnel Test (1977)

E. F. Wonderlic
E. F. Wonderlic and Associates, Inc.
P.O. Box 7
Northfield, IL 60093

Work Values Inventory (WVI) (Grades 7-12, College Adult) (1970)

Donald E. Super
Houghton Mifflin Company
110 Tremont Street
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Allen L. Edwards
Psychological Corporation
304 East 45th Street
New York, NY 10017

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R. W. Henderson
William, Lynde and Williams
153 East Erie Street
Painesville, OH 44077

Trait Evaluation Index (TEI) (1968)

Alan Nelson
Matrin M. Bruce Publishers
340 Oxford Road
New Rochelle, NY 10804

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1808 Collingwood Road
Alexandria, VA 22308

The FIRO Scales (1967)

William C. Schulz
Consulting Psychologists Press, Inc.
577 College Avenue
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Lacy G. Hall and Randolph B. Parrier
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Bensenville, IL 60106

Adaptability Test (1967)

Joseph Tiffin and C. H. Lawshe
Science Research Associates, Inc.
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Chicago, IL 60611

WISCONSIN VOCATIONAL STUDIES CENTER
UNIVERSITY OF WISCONSIN-MADISON

The Wisconsin Vocational Studies Center at the University of Wisconsin-Madison was reorganized with the support of the Wisconsin Board of Vocational, Technical, and Adult Education within the School of Education in 1971. The function of the center is to serve the State of Wisconsin in a unique way by bringing the resources of the University to bear on identified problems in the delivery of vocational and manpower programs--vocational education, technical education, adult education, career education, and manpower training--to citizens of all ages in all communities of the state. The center focuses upon the delivery of services including analyses of need, target groups served, institutional organization, instructional and curriculum methodology and content, labor market needs, manpower policy, and other appropriate factors. To the extent that these goals are enhanced and the foci of problems widened to encompass regional and national concerns, the center engages in studies beyond the boundaries of the state.

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